The hypothesis of energy accumulation and release in materials allow an explanation for excess background events and noise spectra in different detectors and provides a general framework to analyze and deal with such phenomena: one needs to look at what states or defect can carry excess energy, how they can be produced in materials, how they interact, and how their production or interaction can be suppressed, or how these states can be quenched. We discuss the application of this approach to superconducting devices, with an emphasis on the backgrounds and noise at the smallest size and energy scale in superconducting nanowire single-photon detectors and superconducting qubits, and make predictions for new phenomenology to be present.

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344. LLNL-PRES-855100

Early Career
No

Primary author: PEREVERZEV, Sergey (LLNL)
Presenter: PEREVERZEV, Sergey (LLNL)
Session Classification: Poster Session

Track Classification: RDC Parallel Sessions: RDC7: Low-Background Detectors